THE PERSPECTIVE OF UBIQUITY IN DISTANCE LEARNING

Rio de Janeiro – RJ – 05/2015

Vivian Martins Lopes de Souza – Universidade Federal Fluminense – vivi.lmartins@gmail.com

Kind – Scientific Investigation (SI): Research

Educational Sector – Higher Education

Classification of Research Fields in Distance Learning – Educational Technology

Nature – Concluded Study Report

Summary

Distance Learning is a modality of teaching that consolidates itself as the main innovation in the educational field in the last decades. Based on a paradigm of flexibility and quickness in the educational premises, the concept of ubiquity learning and modality in the teaching and learning process emerges. Ubiquitous learning applied to distance learning is the focus of this work, and about it, a research was conducted aiming at contributing to the conjunctural understanding of both ubiquity and mobility. The data collecting instruments used comprehend surveys directed to students and teachers, who can offer contributions about the theme, because they are inserted in the studied reality. The research results show that a large part of the respondents are enrolled in post-graduation courses, with ages from 51 and 60 years old, demonstrating how distance learning courses have been reaching a more mature public. Among the respondents, 84% affirm to use mobile devices to access educational contents, demonstrating how it is important to deal with concepts like ubiquitous learning in the current reality.

Key-Words: Distance Learning; mobility; ubiquitous learning.

1. Introduction

Distance learning “is a modality of learning in which teachers and students are separate, planned by institutions and that uses diverse communication technologies” (MAIA & MATTAR, 2007). Learning technologies are pedagogic tools used to overcome distance in time and space, among students and teachers. The present study was developed to show the use of these pedagogic tools in Distance Learning.

Based on a paradigm of flexibility and quickness in the educational premises, the concept of ubiquitous learning and mobility comes up, what refers to the importance of making learning resources and general information available, without the dependence on time and space. It is the communication through available devices, such as: pocket computers, tablets, cellphones, notebooks, among others, where the access to information is not fixed, that is, tied to a desktop (SANTAELLA, 2013).

According to Barbosa (2008), ubiquitous learning is a process that may occur at anytime, anywhere, in an adapted, continuous way, integrated to the everyday of the student. Santaella (2013) highlights the importance of mobile devices advent, which intensified the teaching and learning process.

With the evolution of mobile devices, there is a huge trend to include facilitators to the ubiquitous learning. For instance, the creation of learning apps, immersible and ludic, like games and didactic processes idealized for the achievement of ubiquitous learning projects. Before the growing use of mobile devices, there was an interest in deepening the knowledge and research about the situation of ubiquity and mobility in Brazilian education.

This article has as its main general objective to research about the use of mobile devices in DL with teachers and students from distance courses. The specific objective, on the other hand, is to investigate which are the most modern and efficient strategies that can be best applied to distance learning. In order to achieve this goal, it is necessary to research DL in the context of mobility and ubiquitous learning, so as to subsidize new researches and practices in this recent educational demand.

The research has both a quantitative and qualitative approach. It uses a methodology able to articulate the bibliographical and empiric research, in a combined way. As for the procedures, the bibliographic research is used to review the literature regarding the area. For the data colleting instrument, a survey was used. The nature of the research is applied, due its practical use in the courses, through suggestions coming from the analysis of the answers to the research, for practical pedagogic updates in DL.

2. Theoretical Assumptions

2.1 Distance Learning

The resignification that learning receives currently, facing the needs of the current world, of the cyber culture and of globalization needs to be studied. Information has been updated quickly. Lévy (2013, p.157) affirms for the first time that the competencies acquired by a person in the beginning of his or her professional path will become obsolete in the end of his or her career, because they will be substituted by others. It translates the changes through which the contents undergo as time passes, and information technology and communication speed up this process. The quality with which these contents are made available to students also needs to be rethought, because, students from today are not like they used to be formerly.

Beber *et al.* (2008) reaffirms the need to rethink learning, having in sight globalization, new trends and technology. Distance learning presents itself as a new perspective to the modern world. Questions like flexibility, autonomy and research development by the student minimize the time used with displacement and with costs of maintenance within a teaching institution.

Distance learning has acquired prominence as a huge evolution of present learning, considering the ease it promotes. “With the contribution of technological development, it is necessary to think that learning is not restricted and neither restrains itself only within educational institutions” (BARBOSA, 2008, p. 3). With technologies inserted in learning and the diverse functions that are presented, it is

necessary to create new pedagogical practices that can stand and potentize the interaction of subjects, as an example, the ubiquity.

2.2 Learning and mobility

Preliminary data from Anatel indicates that there were, in Brazil, in September 2014, 278,1 million cellphones. That is, 136,9 cellphones for each 100 inhabitants. It is an alarming data, if we think that Brazil is a country of many social inequalities. In spite of that, cellphones have been disseminated in an enormous speed (TELECO, 2014).

The access has become free and continuous, with the liberty and ease of obtaining information at any moment. The mobile devices have popularized and the study of the Analyst of Wall Street, Mary Meeker, claims that Brazil is only behind China, United States, and Japan in smartphones (GUIMARÃES, 2013).

> Mobile Devices are defined as any equipment or peripherals that can be transported with information that is accessible anywhere, as palms, lap-tops, i-pads e, certainly, cellphones, like smartphones and i-phones. Through these devices that fit in the palm of our hands, the continuity of time is added to the continuity of space: information is accessible from anywhere. The mobile artifacts evolved in this direction, making the access to information, communication and the knowledge acquisition absolutely ubiquitous and pervasive (SANTAELLA, 2013, p.2).

Living in the age of knowledge, observing the eminent valorization of information and the available resources to search for and process it make us rethink the way learning takes place. Currently, the learner becomes the manager of his own knowledge. The subject is cognitively autonomous, this way, we can say that the individual constructs the knowledge with the actions he carries out over the means, (for example, with *web* 2.0), transforming the object of study.

Mobility, according to Corso, Cavedon and Freitas (2011), has three directions: a spacial, a temporal and a contextual. The special, in which the student can study while he moves, the temporal, due the utilization of time, and the contextual, based on educational planning, as, for example, classes delivered at museums, as we can see as follows. DL

> can be extended to areas that usually demand learning in situ, like medicine and many other types of professionalizing courses. The students will be able to collect data about their practices, share and

> discuss information with teachers, tutors, mentors and colleagues using mobile technologies (UNESCO, 2014, p. 28).

The huge difficulty of uniting learning with mobility to result in ubiquity is the fact that ubiquitous learning demands a bigger concern from the teacher in offering adapted contents to the needs of students. The “sensitivity to the context”, as affirm Mandula, Meda and Kambham (2011, p. 144). In the next topic, we are going to understand ubiquity.

2.3 Ubiquitous learning

Ubiquitous Learning – is a new educational paradigm, that emerges from the massification of mobile devices and it is done considering the characteristics of the context of students– it is already inserted in our daily routine.

Schlemmer (2012) alerts us that time has arrived for communicational technologies, M*obile Learning (m-learning), Ubíquos Learning (u-learning), Immersive Learning (i-learning), Blended Learning (b-learning)* and many other learning opportunities. He complements emphasizing that the challenge that the teacher has to face in order to keep updated and catch up with the news.

The challenges of this pedagogic order, in what refers to ubiquity are important points for reflection. Mobility needs to be incorporated to questions referring to education and learning, aiming at contextualizing it to the reality in which we are inserted. Mobility has enabled changes in communication, in relationships, in electronic commerce and in education.

Only mobility does not provide ubiquitous learning. Ubiquity requires intentionality and other characteristics, as we can see in Santos and Weber (2013, p. 292).

> It is a more flexible means of education, in which the adjective “mobile” is not present only as a way to qualify learning. In broad terms, we can associate mobile learning to the use of some terms like “personalized” , “spontaneous”, “informal”, “pervasive”, “localized”, but none of them, alone, can represent a comprehension about the concept of mobile learning, Santos e Weber (2013, p. 292).

The important thing is to distinguish between mobility and ubiquity. While, mobility is the act of using mobile devices to access information, without any

preoccupation or pedagogic planning, ubiquitous learning is the intentional action so learning is effective through mobile devices. That is, it is the educational preparation of didactic concepts and focused activities in the teaching and learning process considering some factors as the context of the student, for example.

The possibilities that arise from ubiquity are of utmost importance for the future of education. We can select six main possibilities: portability, mobility, data capture, media convergence, interactivity and collaboration. The advantages of main relevance are related to the personalization of the study that contemplates different learning styles, the needs and the connectivity, because it connects people and contents through mobile internet.

The strategies to approximate them from the knowledge and potentize the interaction among the students pass by the technologies. And, in order it occurs, teachers need to be used to that culture of the contemporary world and notice the importance of these advents to the construction of the teaching and learning process.

So as to understand how mobility and ubiquity are seen by the diverse actors from distance learning, a research was conducted and, in the end, the analysis of the obtained results was showed.

3. Results and Discussions

3.1 Description of the specific procedures of the study

An instrument of extensive direct observation was used for the analysis, in the shape of a survey, with questions made with closed and opened answers, these in the form of justification. The research was distributed through an online survey, using *Google Docs*, available on a link in social media and through electronic mail *(e-mail)*. We requested the collaboration of students in the DL modality and professionals who already work in the field. There was a total of 38 respondents and the questionnaire was available from the 6th to 13th of November 2014.

3.2 Analysis Results

Initially, the research intended to verify the personal characteristics of the participants, in order to understand the target audience. From the total, 63% of the respondents took the distance post-graduation course and 35% answered to have between 51 to 60 years old, what demonstrates the mature profile of the post-graduation in DL.

As answers to the questions related to mobile devices, 66% of the respondents affirmed to use them to access virtual environments of learning. This answer shows how the resources of modality and ubiquity are relevant and should be considered in planning DL.

So as to access educational contents, 84% of the respondents affirmed to use mobile devices and 45% accessed it daily. That is a massive representativeness. Still, among the 84% who used mobile devices to education, 32% are professional and 68% students.

With regards to the virtual environment of learning of their course, 50% affirmed to consider it adequate to be accessed via mobile devices. After answering this question, students who considered it inadequate or partially adequate qualified their answers. 20% affirmed that the difficulty was in the connectivity, 20% in the ergonomics and 47% in the responsiveness of the virtual environments of learning, what allows us to respond the initial question: what is the main strategy that best fits distance learning in the context of the ubiquitous learning.

Other 47% answered to know what ubiquitous learning is. That is, we are inserted in a reality in which almost half the respondents know ubiquity. A relevant factor, however, can be the fact that all participants of the research are used to distance learning courses. Each of the questions asked in the survey is presented as follows:

1. What is the level of the distance course you took ?			Post-graduation	24	63%
Undergraduate	2	5%	Other	3	8%
Trainning	9	24%			

2. How old are you?

From 24 to 30 years old	7	18,91%
From 31 to 40 years old	9	24,32%
From 41 to 50 years old	8	21,62%
From 51 to 60 years old	13	35,13%

3. What is currently your role in DL?

Student	26	68%
Teacher	2	5%
Tutor	6	16%
Other	4	11%

4. You prefer to access educational contents from:

Computer (*desktop*)	14	37%
Notebook	20	53%
Cellphone	1	3%
Tablet	2	5%
Personal Digital Assistant	0	0%

5. You use mobile devices to access virtual learning environments?

Yes	25	66%
No	13	34%

6. , You use mobile devices to access educational contents like news, articles, didactic materials, videos, among others?

Yes	32	84%
No	6	16%

7. How often do you use mobile devices for learning purposes?

Daily	17	45%
Weekly	13	34%
Monthly	2	5%
Neveri	6	16%

8. Do you consider the virtual environment of learning of your course adequate to be accessed from a mobile device?

Yes	19	50%
No	11	29%
Partially	8	21%

If your answer is no, or partially, justify it here.

“It depends on the version of the virtual environment, according to the responsiveness.”

“It is possible to see some information in the mobile device, but it is not possible to do anything, not to mention that everything looks pretty reduced”.

“The visualizations of the virtual environments of learning not always are adequate by means of a mobile device, even for the Moodle that adapts its contents to smaller screens”.
“Many times, some posts become "squeezed" (letters below letters) and Reading becomes difficult. However, it is important to highlight that this fact does not invalidate the access, having in sight the practicality”.

“We not always have availability and time to access through more adequate equipment (in my case, the desktop)”.

“The problem is not the virtual environment of learning per se, but the ergonomic limitations of smaller devices, like smartphones.”

“I, particularly, do not like to read in screens which are too small, for me it has to be at least 10 inches”.

“The virtual environment of learning does not seem to have been made to be accessed from mobile device”.

“The interface does not help”
.
“Because it is too heavy. It takes time to open, or it does not open”.

“I consider a mobile device as a notebook. I have never tried to access it from a cellphone”.

“The interface is not adequate, making it difficult to activate the icons and reading

through the combination of horizontal and vertical scrollbars".

"The messages posted in the forums do not adjust in the screen of my cellphone".

Data Capture	0	0%
Media convergence	0	0%
Interactivity	4	11%
Connectivity	4	11%
There is no advantage	1	3%

9. What is the main advantage of using mobile devices in distance learning?

Portability	5	13%
Mobility	24	63%

10. Do you know what ubiquitous learning is?

Yes	18	47%
No	15	39%
Superficially	5	13%

4. Conclusions

The need to rethink learning is mandatory, having in sight globalization, new trends and technologies. In the contemporary world, the demand for technology is higher, if compared to traditional learning practices. DL reveals itself as a new perspective in the modern world and questions like mobility and ubiquity grow in importance in a world where cellphones become indispensable.

The access to information has become free and continuous. The dynamics of the process of information acquisition is fast. The activities possible with apps made available in the mobile devices are diverse, from the most common like the availability of media convergence, to the least common, like watching to video classes, for example.

As an interesting result found in the research, it is possible to observe the growing demand of the use of mobile devices and how they have already been used with educational purposes. Educational, technological and motivational barriers do exist. However, with willpower, the barriers can be overcome and ubiquitous learning can become a common pedagogical philosophy in the planning of distance education.

References

BARBOSA, Débor N. F. Em direção a educação ubíqua: aprender sempre, em qualquer lugar, com qualquer dispositivo. UFRGS, v. 6, n. 1, jul. 2008.

BEBER, B.; MARTINS, J. G.; DIAS, M. M. Mediação Pedagógica no Processo Tutorial. Associação Brasileira de Educação a distância, 2008. Disponível em:

<www.abed.org.br/congresso2008/tc/512200834214PM.pdf > Acessado em 18 ago. 2014.

CORSO, K. B; CAVEDON, N. R; FREITAS, H. Mobilidade Espacial, Temporal e Contextual: um estudo de inspiração etnográfica sobre o trabalho móvel em Shopping Center. In: III Encontro de Administração da Informação, Porto Alegre, 2011.

LÉVY, Pierre. Cibercultura. 3ªed. reimpressa. São Paulo: Ed.34, 2011.

LITTO, Freric M.; FORMIGA, Marcos. Educação a distância: o estado da arte. São Paulo: Pearson, 2009.

MAIA, Carmen; MATTAR, João. ABC da EAD. 1ª ED. São Paulo: Pearson Prentice Hall, 2007.

MANDULA, K.; MEDA, S. R.; KAMBHAM, R. Implementation of Ubiquitous Learning System Using Sensor Technologies. International Conference on Technology for Education. Hyderabad, India: IEEE Computer Society.2011.

SANTAELLA, Lúcia. Desafios da ubiquidade para a educação. Revista Ensino Superior, 2013. Disponível em: <http://www.revistaensinosuperior.gr.unicamp.br/artigos/desafios-da-ubiquidade-para-a-educacao> Acesso em: 12 set. 2013.

SANTOS, E.; WEBER, A. Educação e cibercultura: aprendizagem ubíqua no currículo da disciplina didática. Rev. Diálogo Educ., Curitiba, v. 13, n. 38, p. 285-303, jan./abr. 2013.

SCHLEMMER, Eliane. Políticas e práticas na formação de professores a distância: por uma emancipação digital cidadã. Porto Alegre: UNISINOS, 2012.

TELECO. Estatísticas de Celulares no Brasil. Disponível em: <http://www.teleco.com.br/ncel.asp> Acessado em: 08 nov. 2014.

UNESCO. O Futuro da aprendizagem móvel: implicações para planejadores e gestores de políticas. 64 p. (Documentos de trabalho da UNESCO sobre aprendizagem móvel). Brasília, 2014.